

REMARKS

As of this response, Applicant amends claims 1-3, 6-8, 12, and 15-17. No new matter is added for the amendments or the new claims.

Applicant amends claim 1 in this response. Applicant includes terminology relating to a "ring container system" comprising the at least two pre-stressed rings of increasing diameter placed around the die core as well as terminology relating to a housing comprising a container and cap. Support for these amendments is found in various paragraphs of the application, including paragraphs [0024]-[0025], [0027], [0030]-[0037], [0040]-[0044], [0047]-[0061]. Applicant similarly amends claim 12, a method claim, to reflect these changes.

In addition, minor amendments pertaining to form were made to claims 2, 3, 6-8, and 15-17. These amendments add no new matter to the application.

Claims 1-5 and 10-17 (35 U.S.C. 102(b))

The Examiner rejects claims 1-5 and 10-17 under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 4,392,397 to Engelfriet. The Examiner states that Engelfriet shows in its Figures a diamond die 5 or 42 or 81 positioned within rings 4, 6 or 43, 45 or 82, 80, respectively. Applicant respectfully disagrees. Figure 2 in Engelfriet shows a single cylinder 4 around a die core 5 within a housing 6. Figures 5-7 in Engelfriet show a single annulus 43 around a die core 42 within a housing 45. Figure 8 in Engelfriet shows a single annulus 82 around a die core 81 in a housing 80. Applicant respectfully presents that the Engelfriet does not disclose a "ring container system" of independent claims 1 and 12 of the present application, including at least two rings of increasing diameter, in addition to and separate from the above metal housings and annuli.

Also, the housing (6, 45, or 80) of Engelfriet is not a "ring." The present application defines the term "ring" as "a sleeve or a band of material for holding and/or closing and/or forming a loop around the hard core." (See paragraph [0031]). In contrast, Engelfriet shows separate "housing" and "container" features, already admitted in the application to be prior art and referred to in Engelfriet as the "annulus" and "housing," respectively.

Further, claim 1 of the present application requires that at least two pre-stressed rings be placed around the die core. The present application describes "pre-stressed" to refer to "a ring [that] is deformed either plastically or both elastically and plastically." Engelfriet discloses no such feature. Rather, the single annulus of Engelfriet is only subject to deformation or stress after or during its placement around the die material. (See Engelfriet, column 4, lines 20-40, 58-68; column 5, lines 3-7; and column 6, lines 7-20). Such a method creates high tensile stresses in the ring which can crack the ring. (See paragraph [0012]). Applicant surprisingly has found that pre-stress treatment and the use of multiple rings alleviates tensile stress within the ring(s) and solves the problem presented in Engelfriet of high tensile strengths leading to cracking of a ring placed around a die core.

Claims 9 and 18 (35 U.S.C. 103(a))

The Examiner rejected claims 9 and 18 under 35 U.S.C. 103(a) as being unpatentable over Engelfriet on the asserted basis that the size of the die is dependent upon its intended use and as the temperature used in the disclosed heat treatment would be dependent upon materials used. The Examiner argues that a skilled artisan would be able to determine such optimal sizes and heat treating temperatures. However, as Applicant respectfully argues, the Examiner fails to take into account the new addition of the "ring container system" of the present

application and the size and heat treatment temperatures which were determined in light of this new addition. Hence, a skilled artisan would not have sized the die accordingly in view of Engelfriet, as the new addition of the "ring container system" disclosed by the present application would alter any such sizing modification considerations. Similarly, a skilled artisan would not have determined optimum heating treating temperatures to optimize die results in view of Engelfriet, as the new addition of the "ring container system" disclosed by the present application would alter any such optimal temperature modification considerations.

Claims 6-8, 19 and 20 (35 U.S.C. 103(a))

The Examiner rejects claims 6-8, 19 and 20 under 35 U.S.C. 103(a) as being unpatentable over Engelfriet in view of U.S. Pat. No. 2,027,787 to Ridgeway. While Engelfriet does not disclose the use of a retaining material between the rings, the Examiner argues that Ridgeway at 15 and at page 4, column 2, lines 35-70 discloses such a retaining material feature to increase the bonding effect between the ring and die. As with Engelfriet, Ridgeway does not disclose the "ring container system." Also, the "ring" in Ridgeway is not pre-stressed but rather is a suitable metal, such as a heavy coating of copper, which is electroplated to the die after a polishing operation to serve as a jointing material for the die and a steel holder within which the die is mounted. In contrast, the retaining material, or third-body wedge, of claims 6-8, 19, and 20 of the present application may be added between the die and the "ring container system," or between the rings of the system themselves. This wedge may be in the form of a thin metal foil or coating, or a thin adhesive film, rather than in the form of a heavy metal coating. Hence, Applicant respectfully argues that it would not have been obvious to a skilled artisan to have modified Engelfriet's die by further providing a coating between the rings and die using the

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concepts taught by Ridgeway for the "ring container system" of the present application, as
neither Engelfriet nor Ridgeway teach or disclose such a system.

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CONCLUSION

As of this response, Applicant amends claims 1-3, 6-8, 12, and 15-17. No new matter is added for the amendments or the new claims. For the reasons set forth above, Applicant requests that the Examiner allow the claims.

Should the Examiner have any questions or comments, or need any additional information, he is invited to contact the undersigned at his convenience.

A fee for the one-month automatic extension under MPEP 1.136(a) is included with this submission. To the extent that additional fees are required for this Amendment, the Commissioner is hereby authorized to debit Deposit Account 50-0436.

Respectfully submitted,
PEPPER HAMILTON LLP

A handwritten signature in black ink, appearing to read 'JMS', with a long horizontal flourish extending to the right.

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